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**United States Patent** [19]

Ota et al.

[11] **Patent Number:** 5,499,443[45] **Date of Patent:** Mar. 19, 1996[54] **CONNECTOR PRESS-FITTING APPARATUS**

5,400,502 3/1995 Ota et al. .... 29/741 X

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of Tokyo, Japan**FOREIGN PATENT DOCUMENTS**

3810975	10/1989	Germany	29/845
1300599	12/1989	Japan	29/743
595200	4/1993	Japan	29/743

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[57] **ABSTRACT**

A connector press-fitting apparatus for press-fitting a connector to a printed board has a storing mechanism for storing connectors; a positioning mechanism for maintaining, moving, and positioning a printed board; a press-fitting head having a surface with a channel opening facing a surface of the printed board and mounted to be accessible to and separable from the printed board maintained by the positioning mechanism; a head moving mechanism for moving the press-fitting head in relative to the printed board; a pressure-reducing mechanism for affixing a connector to the press-fitting head by reducing pressure of the above channel of the press-fitting head; a transporting portion for transporting connectors from the storing mechanism and delivering these connectors to the press-fitting head; and a pressure-receiving portion for supporting the printed board from a reverse face thereof at the time of press-fitting a connector to the printed board by the press-fitting mechanism.

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B23P 19/04[52] U.S. Cl. .... 29/741; 29/593; 29/743;  
29/845; 414/737[58] Field of Search ..... 29/739, 740, 741,  
29/743, 759, 837, 845, 593, 705; 414/737[56] **References Cited****U.S. PATENT DOCUMENTS**

4,102,043	7/1978	Andrade et al.	29/739
4,553,322	11/1985	Cappos et al.	29/739
4,587,703	5/1986	Azizi et al.	29/743 X
4,649,633	3/1987	Bocchicchio et al.	29/743 X
4,951,383	8/1990	Amao et al.	29/743 X
5,074,030	12/1991	Anderson et al.	29/845 X
5,276,962	1/1994	Harting et al.	29/845 X

**15 Claims, 16 Drawing Sheets**